AR161098

BLS9G2729LS-350, 2700 to 2900MHz

v1.0 — 9 August 2016

AMPLEON

Application Report

BLS9G2729LS-350 Document information	
Status	Company confidential
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Abstract	Measurement results of a Class-AB design for the 2700 to 2900MHz band with the BLS9G2729LS-350

1. Revision History

Table 1: Report revisions

Revision	Date	Description	Author
1.0	20160809	Initial document	Hans Mollee

2. Contents

3. List of figures

4. List of tables

5. General description

This report presents the measurement results of the Class-AB demo AR161098. The device used is a BLS9G2729LS-350, 9th generation LDMOS single ended package. The presented demo is tuned for the frequency band 2700 to 2900MHz.

The PCB has been designed on Rodgers RO4360, h=0.61mm, ε_R=6.2, 35um double sided copper. Supply voltage (drain-source) is 28V. Gate bias voltage is connected to the Vg terminals on the input board. To set the drain quiescent current, slowly increase V_{GS} until the I_{DQ} will be 400 mA, starting at about 1V.

When switching of the RF-pulse a spike may appear on the drain supply due to the inductance and the fall time of the pulse. When using signal with a rapid fall time this spike may become (too) large. By placing two 10µF SMD capacitors (C9 and C12) on the drain supply. These spikes will be reduced to virtually zero.

5.1 Performance Details

The pulse format used is a 300 μs pulse with a duty cycle of 10%. The power sweep was performed up to 3 dB gain compression.

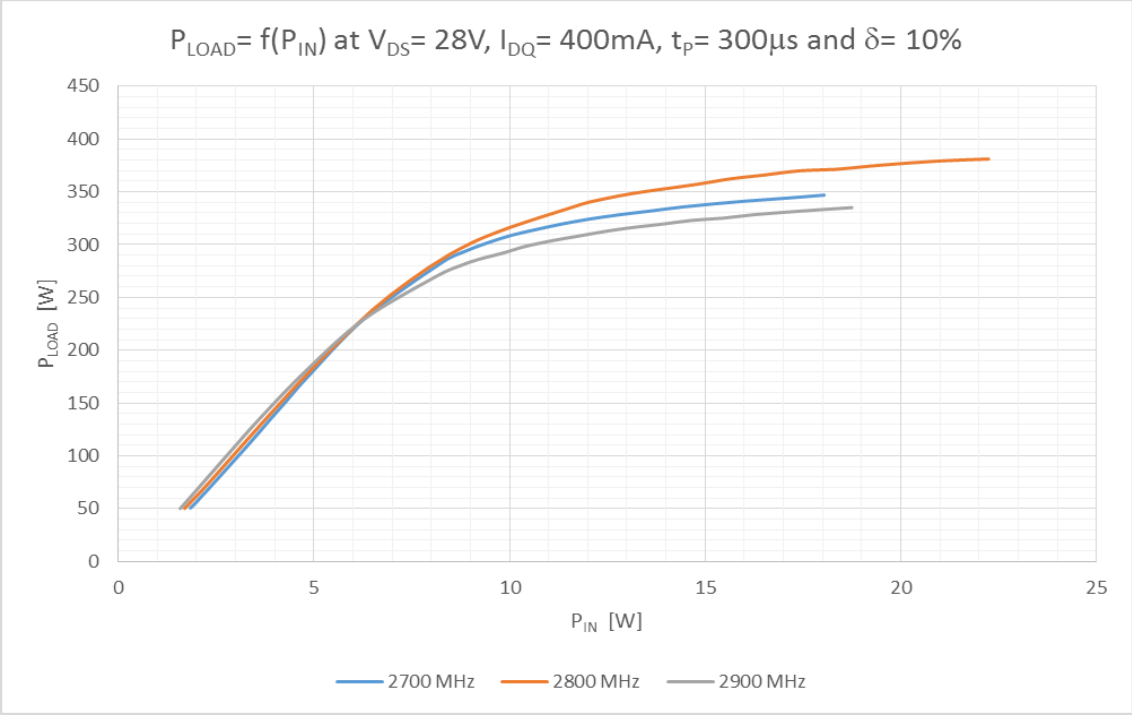


Figure 1 P_{LOAD} vs P_{IN}

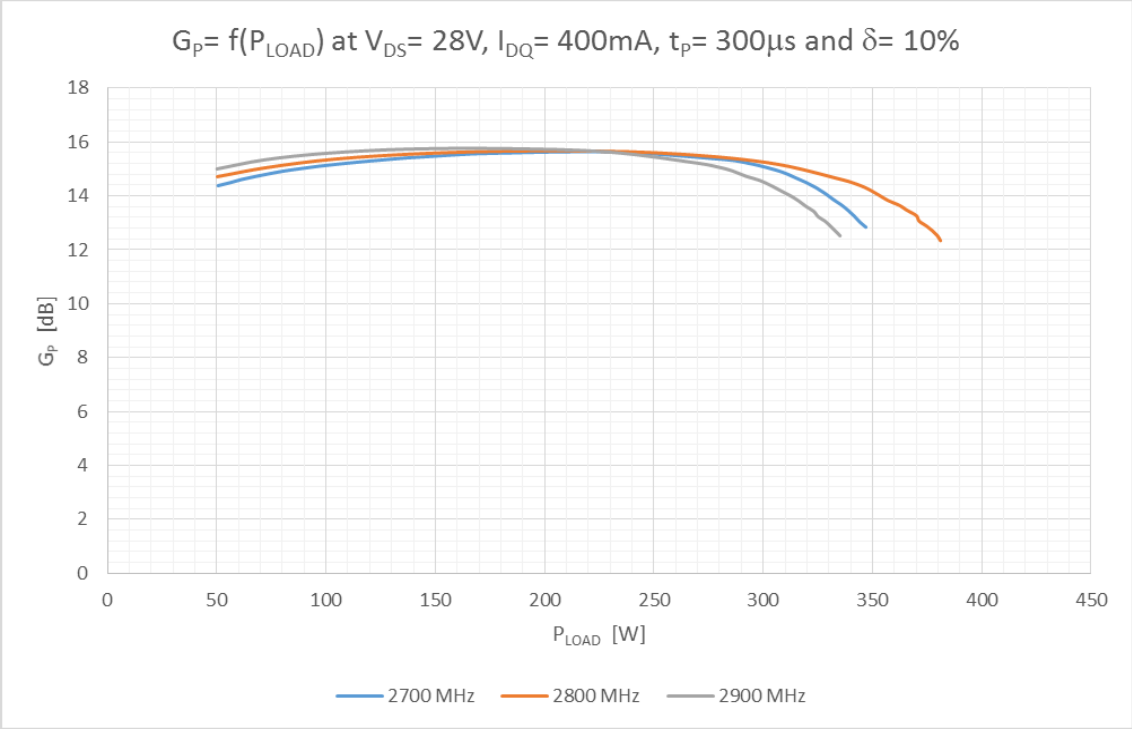


Figure 2 Gain vs P_{LOAD}

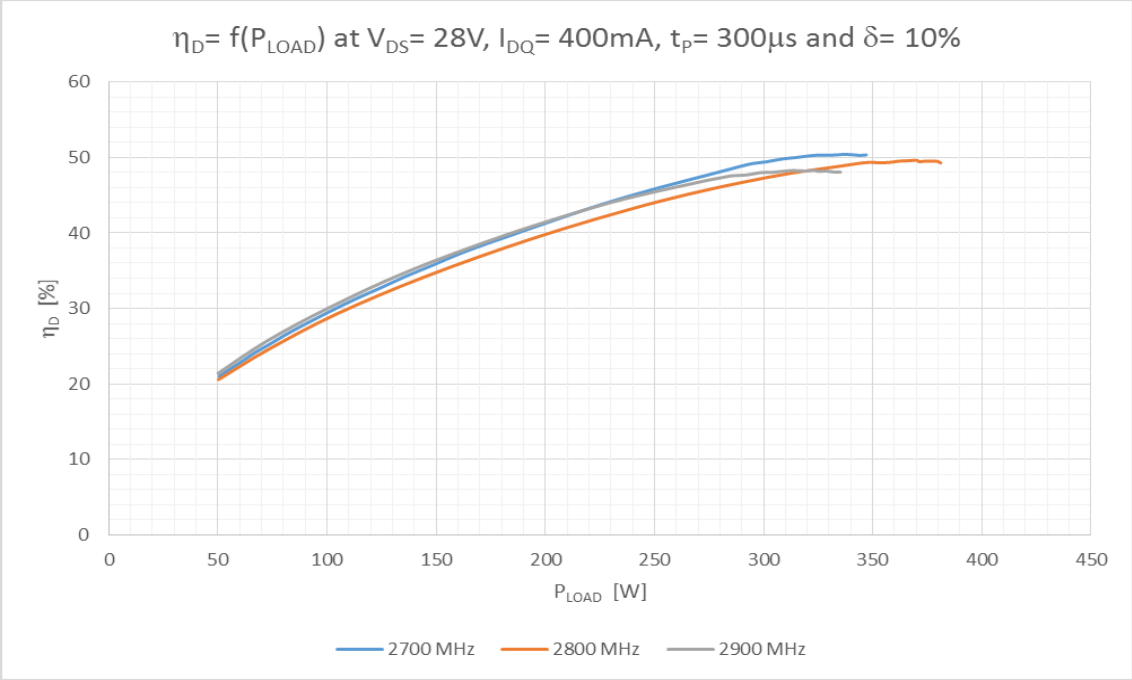


Figure 3 Drain efficiency vs P_{LOAD}

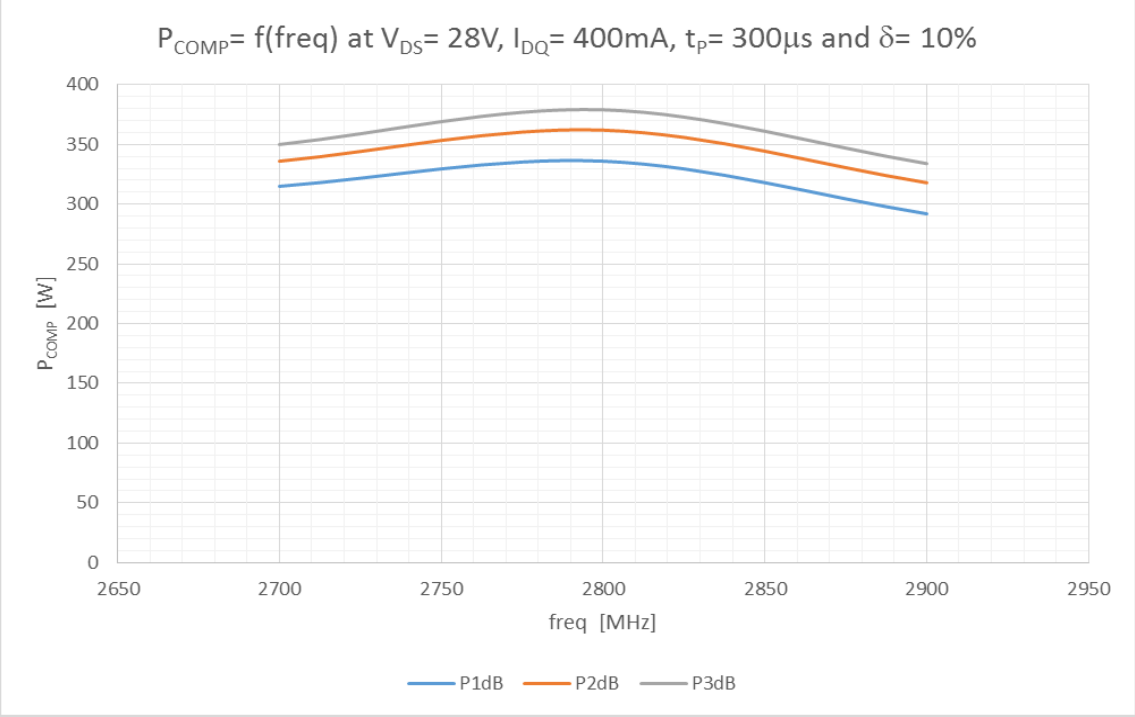


Figure 4 Compressed Power

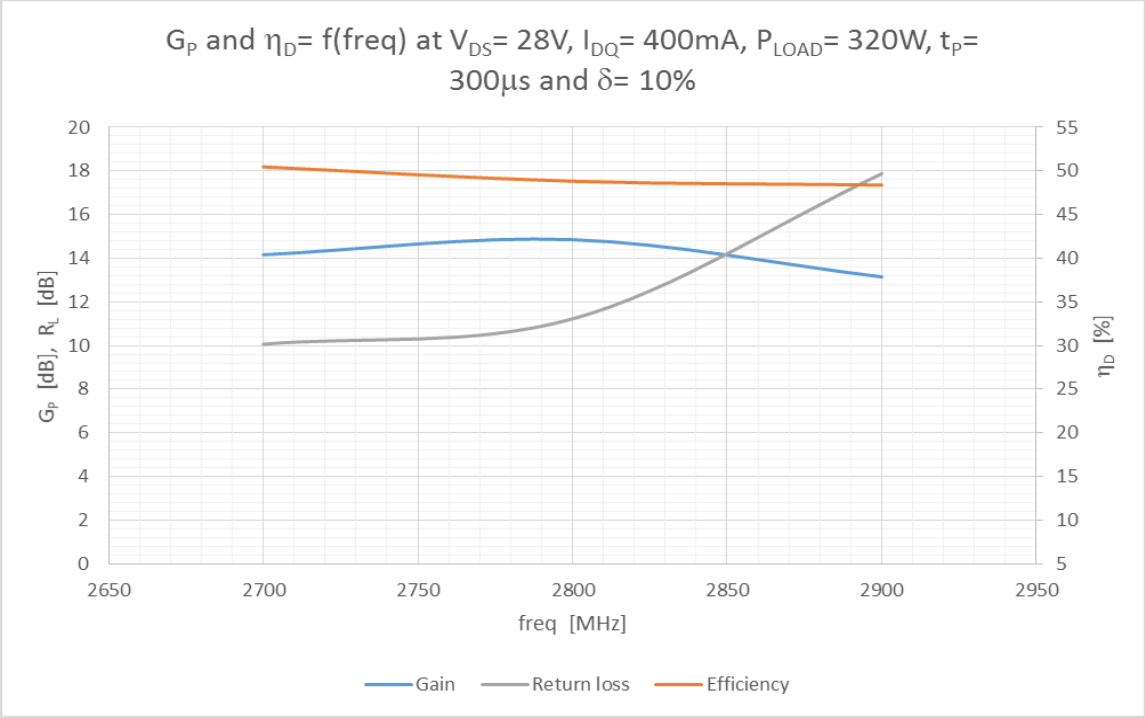
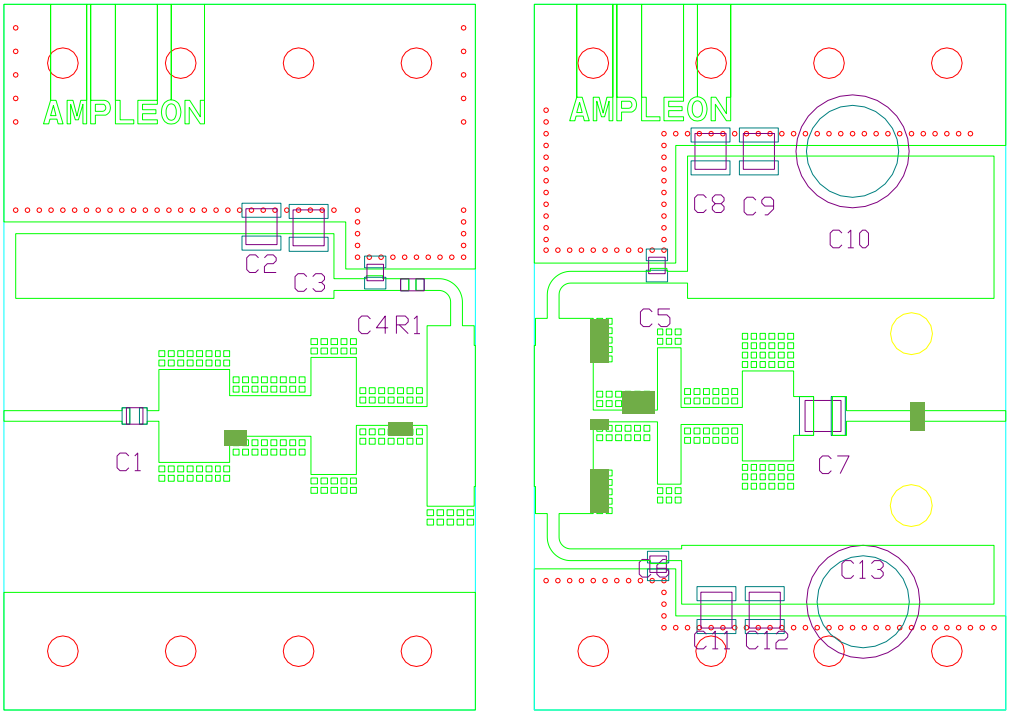


Figure 5 Performance at 320W

6. Hardware



Components list application circuit.

C1	12 pF	ATC800A
C4, C5, C6	15 pF	ATC800A
C7	12 pF	ATC800B
C2, C8, C11	1 nF	ATC800B
C3, C9, C12	10 μF	Murata GRM55DR61H106KA88L
C10, C13	100 μF	63 V, Electrolytic capacitor
R1	5 Ω	0603 SMD Resistor

PCB Material: Rogers 4360G2, thickness 0.61 mm (24 mil) or equivalent, ε_R = 6.15, Cu = 35 micron

6.1 Board material

Table 2: Board specifications

Parameter	Value
Manufacturer	Rogers
Type	RO4360G2
Thickness	24 mil, 0.61 mm
Layers	2, top/bottom. Bottom all copper

6.2 Device markings

Table 3: Device specifics

Parameter	Value
Manufacturer	Ampleon
Device	BLS9G2729LS-350
Marking	BLS9G2729LS-350,
Comments	Engineering sample

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